

back and forth, in other words by a multiple reversal of the pressing direction. Additional details in this regard will be explained at greater length on the basis of Fig. 6 and 7. The push-pull extrusion process can be of specific importance if, for example, dead-end holes, through openings, indentations, or special shapes are provided in the corresponding part. Then the special progression of the fibers can be influenced, and the component to be manufactured can therefore be particularly reinforced specifically in that region where special reinforcement is necessary.

IN THE CLAIMS

1. **(TWICE AMENDED)** A process for manufacturing components made of fiber-reinforced thermoplastic materials, where a blank formed of fibers and a thermoplastic material is first pre-finished, and said blank is brought into a final form of a component in a negative mold, under pressure, in a hot-forming process, comprising the steps of:
heating the entire blank to a forming temperature in a heating stage,
pressing said heated blank into the negative mold and,
shaping the blank in the negative mold by virtue of the entire blank flowing from the heating stage into the negative mold.

2. **(TWICE AMENDED)** A process for manufacturing components which are under stress, made of fiber-reinforced thermoplastic materials, where a blank formed with a fiber proportion of more than 50 volume-% and with at least predominant use of endless fibers and said fiber-reinforced thermoplastic material is first pre-finished, and said blank is brought into a final form of a component in a negative mold, under pressure, in a hot-forming process, comprising the steps of:

heating the entire blank to a forming temperature in a heating stage,
pressing said heated blank into the negative mold and,
shaping the blank in the negative mold by virtue of the entire blank flowing from the heating stage into the negative mold.

3. **(THRICE AMENDED)** The process according to Claim 1, wherein the blank is further pre-finished as rod material and is cut to a plurality of lengths required for a final component before the hot-forming process.

4. **(THRICE AMENDED)** The process according to Claim 1, further comprising fibers that are endless and have a length that corresponds at least to a length of the blank for a final component.

5. **(THRICE AMENDED)** The process according to Claim 1, wherein said blank is composed of layers with different fiber orientation in a lengthwise direction.

6. **(THRICE AMENDED)** The process according to Claim 1, wherein the blank is formed from more than one polymer laminate.

7. **(THRICE AMENDED)** The process according to Claim 1, wherein the shaping of the blank is accomplished by a push-pull extrusion process.

8. **(THRICE AMENDED)** The process according to Claim 1, further comprising the step of:

heating the blank to a forming temperature of 350-450 °C, and then after pressing said blank into the negative mold and shaping thereby,

cooling said shaped blank below the glass transition temperature of the thermoplastic material in a post-pressure phase.

9. **(TWICE AMENDED)** The process according to Claim 1, further comprising the step of using carbon or graphite as a release agent for releasing the shaped blank from the negative mold.

10. **(THRICE AMENDED)** The process according to Claim 1, wherein the blank is made of PAEK (polyaryl ether ketones) reinforced with carbon fibers.

11. **(THRICE AMENDED)** The process according to Claim 1, wherein said blank is formed from endless fibers and at least part of the endless fibers run parallel to an axis of the blank.

12. **(THRICE AMENDED)** The process according to Claim 1, wherein at least a portion of the fibers has an orientation from 0 to 90° in the blank.

13. **(THRICE AMENDED)** The process according to Claim 1, wherein the fibers have a length of more than 3 mm.

14. **(THRICE AMENDED)** The process according to Claim 1, wherein the fibers are surrounded by said thermoplastic material, covering a surface of the blank during said shaping of said blank.

15. **(THRICE AMENDED)** The process according to Claim 1, wherein a pressing temperature and a pressing speed are adjusted as a variable to change position and alignment of the fibers in a finished component.

16. **(THRICE AMENDED)** The process according to Claim 1, wherein the components receive an additional surface seal during the hot-forming process.